

Summary of Extended Site Inspection Data for Sites 52A, 52B, and 52C at NAVWPNSTA Seal Beach, Detachment Fallbrook

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Executive Summary

This memorandum presents a summary of the data collected for the Extended Site Inspection (ESI) at Installation Restoration Program (IRP) Sites 52A, 52B, and 52C at NAVWPNSTA Seal Beach, Detachment Fallbrook. Sampling for the ESI was conducted October 10 and 11, 2002 at all three sites with supplemental sampling conducted at Sites 52A and 52C on March 19, 2003.

Based on the results of the sampling and imminent habitat restoration and monitoring to be implemented at the sites, the Navy is recommending no further investigation.

Introduction

Sites 52A, 52B, and 52C were used at Detachment Fallbrook to store canisters of napalm in wooden crates from the early 1970s until the time of their removal in 2001. Approximately 35,000 napalm canisters were stored on the three noncontiguous sites. During the time of storage, the aluminum canisters containing Napalm B began to degrade and resulted in the leakage of napalm onto site soils. Napalm B is a homogeneous mixture consisting of approximately 46 percent polystyrene, 33 percent gasoline (leaded and unleaded), and 21 percent benzene. Additionally, wooden crates containing the canisters became weathered and brittle, resulting in shards of wood scattered about the sites. This wood had been treated at the time of crate manufacture with the preservative pentachlorophenol (PCP) and copper chromium arsenate (CCA); the chemical 2,4-dinitrophenol was also detected in wood analyzed from the crates (SWDIV, 1991).

There are two sensitive animal species located on or near Sites 52A, 52B, and 52C: the California gnatcatcher, a federally threatened species and a state species of special concern, and the Stephen's kangaroo rat, a federally endangered species and a state threatened species.

This ESI is the second Site Inspection (SI) to be implemented at Sites 52A, 52B, and 52C as part of the IRP at Detachment Fallbrook; hence, it is designated as the “Extended Site Inspection.” The initial SI was conducted in 1991 and resulted in the determination of no further action (NFA) (SWDIV, 1991). Soil sampling conducted directly beneath leaking canisters in 1991 indicated that no further action (NFA) was necessary. Because the SI sampling occurred over ten years ago, this ESI was initiated to gather current data for the sites.

ESI Sample Locations and Analytes

October 2002 Sampling

Soil sample locations were selected by using the distribution-free statistical sampling method. Ten target sampling locations were identified for each site based on the nodes on the randomly placed grids (labeled 1 through 10 in blue on Figures 1, 2, and 3). Two additional, collocated samples were located at each site (labeled 11 and 12 in green on Figures 1, 2, and 3) based on the method described in the ESI Work Plan (SWDIV, 2002). Therefore, a total of 36 samples were collected at Sites 52A, 52B, and 52C in the October sampling event (12 samples per site). Samples were collected from the surface (0- 0.5 ft) and at a depth of 2 feet below ground surface (bgs). The subsurface samples were held by the laboratory for analysis if an anomaly was confirmed in the associated surface sample.

Table 1 presents the requests for analyses for Sites 52A, 52B, and 52C. The laboratory analytical parameters for the October 2002 samples consisted of benzene, ethylbenzene, styrene, toluene, xylenes, phenols (includes 14 phenolic compounds), and arsenic, copper, total chromium, lead, organic lead, and moisture content. Samples with detections of pentachlorophenol (PCP) were also analyzed for chlorinated dioxins and chlorinated furans. These parameters were analyzed based using EPA Contract Laboratory Program (CLP) methods. Quality assurance/quality control samples including duplicates, matrix spike/matrix spike duplicates (MS/MSD), and equipment rinsate blanks are also shown in Table 1.

March 2003 Sampling

An additional sixteen locations were sampled in March 2003 to assess the extent of PCP concentrations surrounding 4 borings at Sites 52A and 52C that were found to contain PCP and chlorinated dioxins and furans. Soil samples were collected at a distance of 10 feet in four directions (north, south, east and west) from sample stations 52A06, 52A07, 52C09, and 52C11. As in the October 2002 sampling, samples were collected from the surface and at a depth of 2 feet bgs. The subsurface samples were held by the laboratory to be analyzed if anomalies were confirmed in the associated surface sample. Subsurface (2 feet bgs) soil samples from sample stations 52A06, 52A07, 52C09, and 52C11 were also collected and analyzed to aid in the characterization of the vertical extent of PCP in the four borings with PCP detected in the surface sample. Figures 1 and 3 show the March 2003 supplemental sampling locations.

Table 1 presents the requests for analyses for the March 2003 sampling at Sites 52A and 52C. A total of 20 target samples were collected and analyzed for phenols (including PCP) and metals (chromium, copper, lead, and arsenic) using CLP methods. Quality assurance/quality control samples including duplicates and MS/MSDs are also shown in

Table 1 for the March event. More specifically, a total of four subsurface (2-feet bgs) samples from the initial sampling locations (52A06, 52A07, 52C09, and 52C11) were analyzed for phenols because PCP was detected in the surface sample from those locations. These four subsurface samples were also analyzed for lead, chromium, copper, and arsenic. A total of 16 surface soil samples were collected from the 16 new locations (52A13, 52A14, 52A15, 52A16, 52A17, 52A18, 52A19, 52A20, 52C13, 52C14, 52C15, 52C16, 52C17, 52C18, 52C19, 52C20) and analyzed for phenols and metals.

Results and Conclusions

The results from the October 2002 and March 2003 sampling events are presented in Tables 2, 3, and 4. As indicated in the tables, PCP was detected in only 4 samples, all of which were collected in October 2002. PCP was detected in two samples at Site 52A (borings 52A06, 52A07) and in two samples at Site 52C (borings 52C09, and 52C11). Chlorinated dioxins and furans subsequently were also detected in these four samples. Phenols were not detected in the subsurface samples (2 foot bgs) collected from these four borings (52A06, 52A07, 52C09, and 52C11). In addition, PCP was not detected in any of the 16 supplemental samples collected surrounding these four borings in March 2003.

Based on the analytical results, Navy recommends no additional investigation for the following reasons:

- The detections of organic compounds in October 2002 appear to be isolated and sporadic, as verified in the analytical results of samples collected in March 2003.
- There are currently no plans to use the sites for residential, commercial, or industrial purposes. Because these sites are designated as Stephen's kangaroo rat habitat, the Navy will not allow disturbance to occur at these sites without appropriate consultation with the U.S. Fish Wildlife Service (USFWS) as required by the Endangered Species Act.
- The maintenance activities at the three sites during the storage and removal action of napalm has enhanced the habitats and populations of Stephen's kangaroo rat. The exposure to wood crates and leaked napalm did not appear to have impacted the populations of Stephen's kangaroo rat. However, the populations appear to have decreased since the completion of the removal action due to lack of maintenance activities and thick vegetation (SJM Biological Consultants, 2002). Restoration of and enhancements to the Stephen's kangaroo rat habitat at the sites is scheduled to begin upon obtaining no-further-action concurrence from DTSC.
- The sites and the Stephen's kangaroo rat communities will be managed and monitored continuously by the Detachment Fallbrook Natural Resources Program Manager under the supervision of the USFWS.

References

Southwest Division, Naval Facilities Engineering Command (SWDIV), 1991. *Site Inspection Report, Site 52 Napalm Canister Storage Areas, Volume I, Naval Weapons Station, Seal Beach, California*, prepared by Jacobs Engineering Group Inc. 30 September.

SWDIV, 2002. *Appendix A, Field Sampling Plan, Extended Site Inspection, Sites 52A, 52B, and 52C, Naval Weapons Station, Seal Beach, Detachment Fallbrook*, 26 July.

CH2M HILL, 2003. *Field Sampling Plan Amendment for Extended Site Inspection Work Plan, Supplemental Sampling for Sites 52A and 52C, Naval Weapons Station, Seal Beach, Detachment Fallbrook*, 12 February.

SJM Biological Consultants, 2002. *Report of a Base-wide Survey for Stephens' Kangaroo Rats (Dipodomys stephensi) on Fallbrook Naval Weapons Station and Methods and Results of an SKR Monitoring Program for Fallbrook Naval Weapons Station - Fallbrook, California*, 21 August.

Tables

TABLE 1

Request for Analyses – Sites 52A, 52B, and 52C - Former Napalm Storage Areas

Extended Site Inspection

NAVWPNSTA Seal Beach, Detachment Fallbrook

Sites 52A, 52B, and 52C - Former Napalm Storage Areas			Laboratory Analyses (CLP Methods)			
Sample Description	Sample Type	Depth of Sample	VOCs (benzene, ethylbenzene, styrene, toluene, and xylenes)	SVOCs [14 phenolic compounds including phenol, pentachlorophenol, and 2,4-dinitrophenol; and in samples that PCP is detected, chlorinated dioxins and chlorinated furans (tetra through octa congeners)]	Metals (arsenic, total chromium, copper, lead, and organolead)	Moisture Content
October 2002 Sampling						
Site 52A – 1 through 12	Surface Soil	0.5 feet	X	X	X	X
Site 52B – 1 through 12	Surface Soil	0.5 feet	X	X	X	X
Site 52C – 1 through 12	Surface Soil	0.5 feet	X	X	X	X
Duplicates – 4	Surface Soil	0.5 feet	X	X	X	X
MS/MSD – 2	Surface Soil	0.5 feet	X	X	X	X
Equipment Rinsates - 2	Water	NA	X	X	X	NA
Source Water Blanks – 2	Water	NA	X	X	X	NA
Trip Blanks – 2	Water	NA	X			NA
March 2003 Sampling						
Site 52A – 6 and 7	Subsurface Soil	2.0 feet		X	X (no organolead)	
Site 52A – 13 through 20	Surface Soil	0.5 feet		X	X (no organolead)	
Site 52C – 9 and 11	Subsurface Soil	2.0 feet		X	X (no organolead)	
Site 52C – 13 through 20	Surface Soil	0.5 feet		X	X (no organolead)	
Duplicates – 2	Surface Soil	0.5 feet		X	X (no organolead)	
MS/MSD – 1	Surface Soil	0.5 feet		X	X (no organolead)	

NA = Not applicable

Insert Tables 2, 3, 4

Figures

TABLE 2
Site 52A - Former Napalm Storage Area
Extended Site Inspection Report
NAUMPSSTA Soil Beach, Detachment/ Fallbrook, California

Sample ID	52A01-SO-1	52A01-SO-1	52A02-SO-1	52A03-SO-1	52A03-SO-1	52A03-SO-1	52A04-SO-1	52A05-SO-1	52A06-SO-1	52A06-SO-3	52A07-SO-1	52A07-SO-3	52A08-SO-1	52A09-SO-1	52A10-SO-1	52A11-SO-1	52A12-SO-1	52A13-SO-1	52A14-SO-1	52A15-SO-1	52A16-SO-1	52A16-SO-1	52A16-SO-1	52A17-SO-1	52A18-SO-1	52A19-SO-1	52A20-SO-1
Station Location	52A01	52A01	52A02	52A03	52A03	52A03	52A04	52A05	52A06	52A06	52A07	52A07	52A08	52A09	52A10	52A11	52A12	52A13	52A14	52A15	52A16	52A16	52A16	52A17	52A18	52A19	52A20
Sample Depth	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	2.0 feet	0.5 feet	2.0 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	0.5 feet	
Sample Type	Target	MISSED	Target	Target	Target	Duplicate	Target	Target	Target	Target	Target	Target	Target	Target	Target	Collocate	Collocate	Collocate	Target	Target	Target	Duplicate	Target	Target	Target	Target	
Sample Date	10/10/2002	10/10/2002	10/10/2002	10/10/2002	10/10/2002	10/10/2002	10/10/2002	10/10/2002	10/10/2002	3/19/2003	10/10/2002	3/19/2003	10/10/2002	10/10/2002	10/10/2002	10/10/2002	10/10/2002	3/19/2003	3/19/2003	3/19/2003	3/19/2003	3/19/2003	3/19/2003	3/19/2003	3/19/2003	3/19/2003	
METHOD ANALYTE	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	UNITS	
LUPP ORLAND LEAD	mg/kg	0.02 U	0.01 U	0.0 U	0.01 U	0.01 U	0.01 U	0.02 U	0.02 U	NA	0.02 U	NA	0.01 U	0.02 U	0.01 U	0.01 U	0.01 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Metals ARSENIC	mg/kg	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	2.4	1.1 U	2.4	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.8 B	1.8 B	1.4 B	1.1 U	2.1 B	1.1 U	2.4		
Metals CHROMIUM	mg/kg	24.3	30.9	13.6	24.2	26.8	24.5	24.6	13.7	34.3	26.3	36.7	21.1	20.7	20.1	10.7	20.6	13.7	13.6	13.2	17.5	31.6	29.4	30.8	32.6		
Metals COPPER	mg/kg	16.4	16.4	11.3	16.4	16.3	24	22.9	13.8	29.4	17.1	23.3	24.4	14	14.9	7.9	16.8	13	13.8	16.2	14.5	20.4	20.2	19.3	19.8		
Metals LEAD	mg/kg	0.4 B	0.06 B	2.4	0.06	0.06 B	4	0.79	9.6	4.4	5.6	1.2 U	4.3	1	6	5.7	4.1	18.0	3	2 U	2.5	2.7	3.7	1.5 U	2.6	1.3 U	
SVOCs 2,4,6-TRICHLOROPHENOL	µg/kg	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	810 U	800 U	810 U	900 U	900 U	900 U	830 U	840 U	840 U	890 U	
SVOCs 2,4,6-TRICHLOROPHENOL	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	340 U	340 U	350 U	
SVOCs 2,4-DICHLOROPHENOL	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	340 U	340 U	350 U	
SVOCs 2,4-DIBROMOPHENOL	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	340 U	340 U	350 U	
SVOCs 2,4-DINITROPHENOL	µg/kg	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	810 U	800 U	810 U	900 U	900 U	900 U	830 U	840 U	840 U	890 U	
SVOCs 2-CHLOROPHENOL	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	340 U	340 U	350 U	
SVOCs 2-METHYLPHENOL	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	340 U	340 U	350 U	
SVOCs 2-NITROPHENOL	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	340 U	340 U	350 U	
SVOCs 4-6-DINITRO-3-METHYLPHENOL	µg/kg	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	810 U	800 U	810 U	900 U	900 U	900 U	830 U	840 U	840 U	890 U	
SVOCs 4-CHLORO-3-METHYLPHENOL	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	340 U	340 U	350 U	
SVOCs 4-METHYLPHENOL	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	340 U	340 U	350 U	
SVOCs 4-NITROPHENOL	µg/kg	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	810 U	800 U	810 U	900 U	900 U	900 U	830 U	840 U	840 U	890 U	
SVOCs PENTACHLOROPHENOL	µg/kg	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	800 U	810 U	800 U	810 U	900 U	900 U	900 U	830 U	840 U	840 U	890 U	
SVOCs PHENOL	µg/kg	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	330 U	340 U	340 U	350 U	
VOCs BENZENE	µg/kg	10 U	9 U	9 U	10 U	11 U	13 U	10 U	11 U	12 U	10 U	12 U	9 U	9 U	10 U	11 U	11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	
VOCs ETHYLBENZENE	µg/kg	10 U	9 U	9 U	10 U	11 U	13 U	10 U	11 U	12 U	10 U	12 U	9 U	9 U	10 U	11 U	11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	
VOCs STYRENE	µg/kg	10 U	9 U	9 U	10 U	11 U	13 U	10 U	11 U	12 U	10 U	12 U	9 U	9 U	10 U	11 U	11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	
VOCs TOLUENE	µg/kg	10 U	9 U	9 U	10 U	11 U	13 U	10 U	11 U	12 U	10 U	12 U	9 U	9 U	10 U	11 U	11 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	
VOCs XYLENES	µg/kg	10 U	9 U	9 U	10 U	11 U	13 U	10 U	11 U	11 U	12 U	10 U	12 U	9 U	9 U	10 U	11 U	11 U	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,4,6,7,8-HxCDD	ng/kg	NA	NA	NA	NA	NA	NA	NA	13210	NA	4929	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,4,6,7,8-HxCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	1866	NA	2964	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,4,7,8,9-HxCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	7015	NA	2771	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,4,7,8-HxCDD	ng/kg	NA	NA	NA	NA	NA	NA	NA	299.6	NA	297.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,4,7,8-HxCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	77.71	NA	186.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,6,7,8-HxCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	591.1	NA	744.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,6,7,8-HxCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	50.79	NA	205.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,7,8,9-HxCDD	ng/kg	NA	NA	NA	NA	NA	NA	NA	699.6	NA	593.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,7,8,9-HxCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	2.322	NA	5.213	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,7,8-PeCDD	ng/kg	NA	NA	NA	NA	NA	NA	NA	105.6	NA	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 1,2,3,7,8-PeCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	5.467	NA	24.09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 2,3,4,6,7,8-HxCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	156	NA	66.68	NA	156	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 2,3,4,7,8-PeCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.001 X	NA	20.01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 2,3,7,8-TCDD	ng/kg	NA	NA	NA	NA	NA	NA	NA	8.629	NA	13.73	NA	13.73	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins 2,3,7,8-TCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	2.332	NA	3.938	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins Total HxCDD	ng/kg	NA	NA	NA	NA	NA	NA	NA	24360	NA	9131	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins Total HxCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	4177	NA	7340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins Total HxCDD	ng/kg	NA	NA	NA	NA	NA	NA	NA	4378	NA	4996	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins Total HxCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	1830	NA	4835	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins Total PeCDD	ng/kg	NA	NA	NA	NA	NA	NA	NA	310.6	NA	390.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins Total PeCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	220.6	NA	636.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins Total TCDF	ng/kg	NA	NA	NA	NA	NA	NA	NA	22.75	NA	32.69	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dioxins Total TCDD	ng/kg	NA	NA	NA	NA	NA	NA	NA	25.99	NA	38.73	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA						

ng/kg = milligram per kilogram

µg/kg = microgram per kilogram

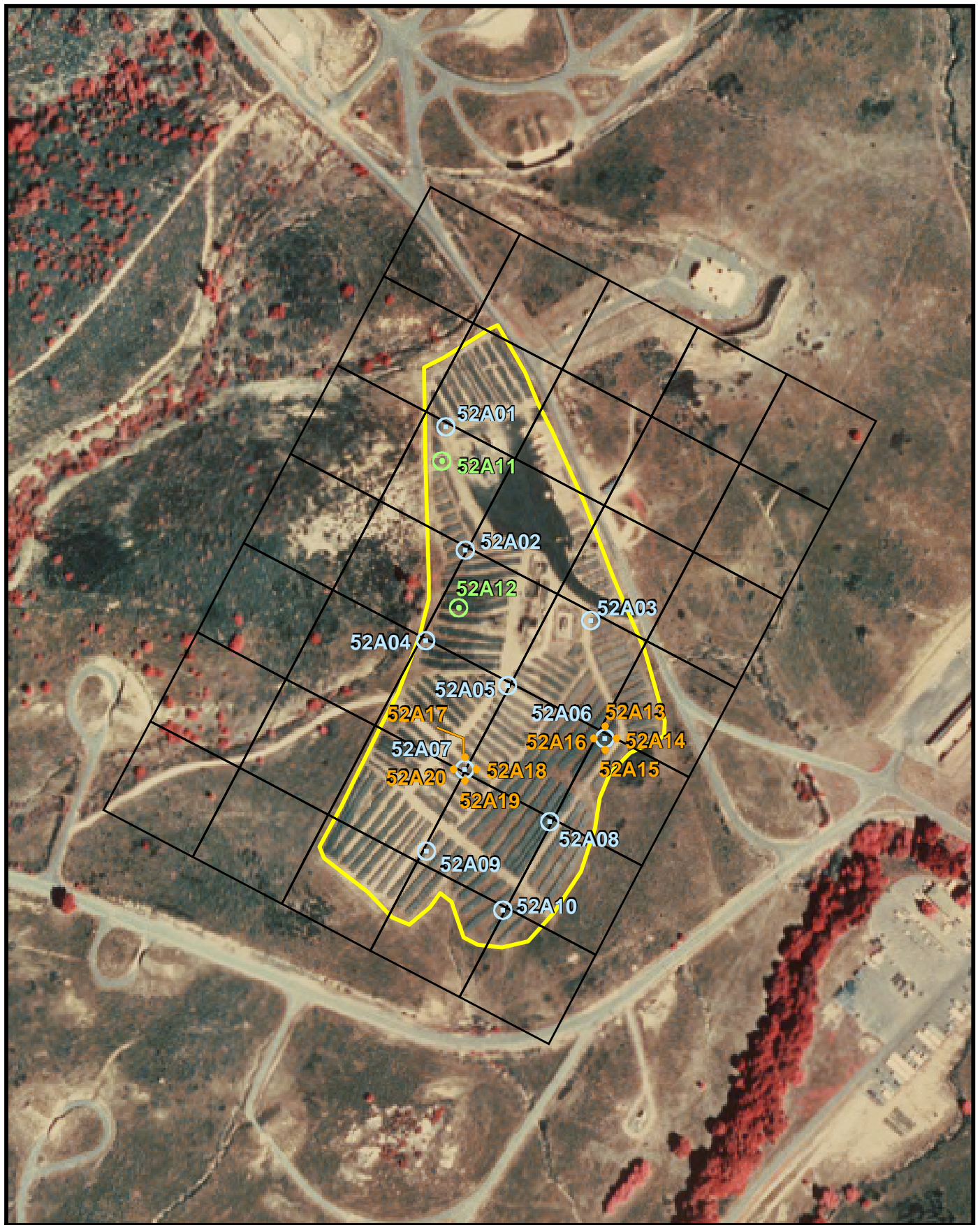
ng/g = nanogram per kilogram

NA = not analyzed

B = compound in the blank

U = indicates an estimated value

Insert Figures 1, 2, and 3.



Key to Features

- Original Sample Location (October 2002)
- Collocated Sample Location (October 2002)
- Supplemental Sample Location* (March 2003)
- Napalm Storage Area
- Randomly Placed Grid

* Not to scale; samples located 10 feet from original Sample 52A06 or 52A07

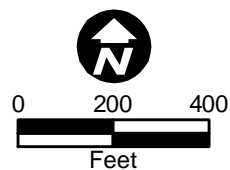
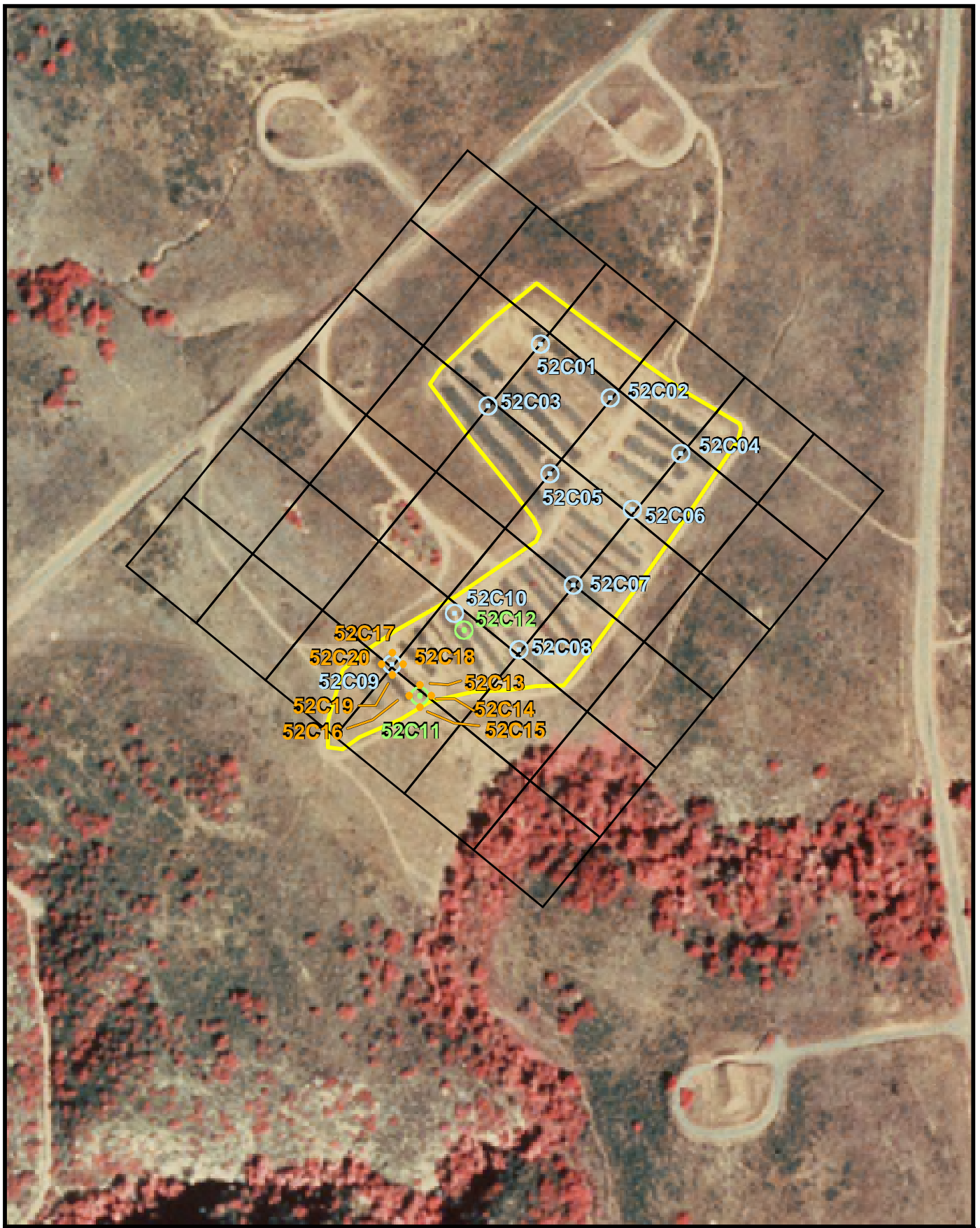


Figure 1
Site 52A Sampling Locations
 NAVWPNSTA Seal Beach,
 Detachment Fallbrook
 Extended Site Inspection



Key to Features

- Original Sample Location (October 2002)
- Collocated Sample Location (October 2002)
- Supplemental Sample Location* (March 2003)
- Napalm Storage Area
- Randomly Placed Grid

* Not to scale; samples located 10 feet from original Sample 52C09 or 52C11

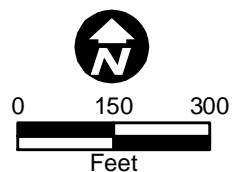
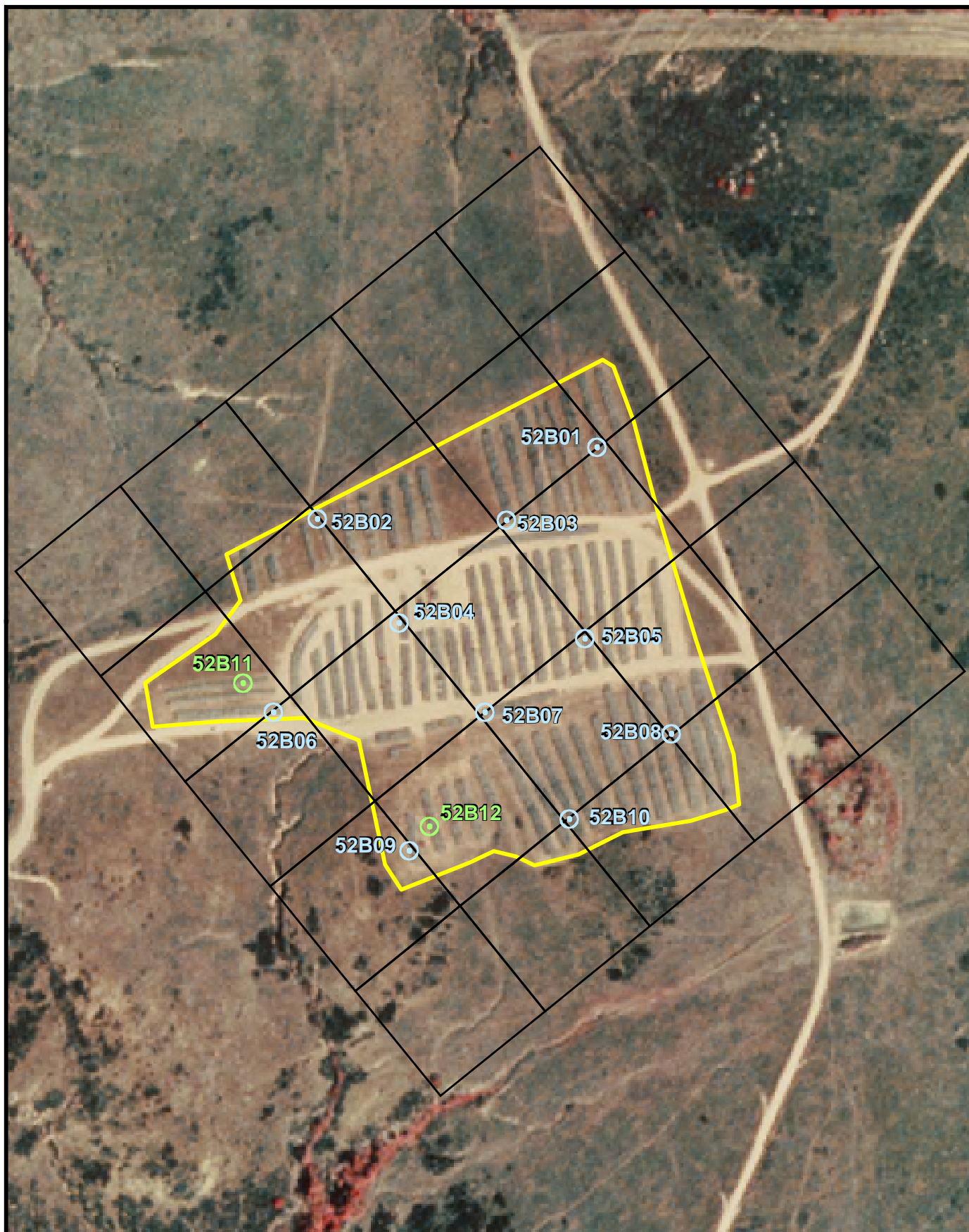


Figure 3
Site 52C Sampling Locations
 NAVWPNSTA Seal Beach,
 Detachment Fallbrook
 Extended Site Inspection



Key to Features

- Original Sample Location (October 2002)
- Collocated Sample Location (October 2002)
- Napalm Storage Area
- Randomly Placed Grid

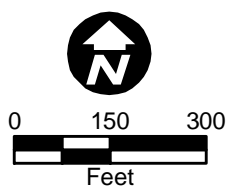


Figure 2
Site 52B Sampling Locations
 NAVWPNSTA Seal Beach,
 Detachment Fallbrook
 Extended Site Inspection